



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

Office of Aviation Policy  
and Plans

Washington, D.C. 20591

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# **Econometric Cost Functions for FAA Cost Allocation Model**



1. Report No. <b>FAA-APO-87-15</b>	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle  Econometric Cost Functions for FAA Cost Allocation Model		5. Report Date <b>December 1986</b>	
		6. Performing Organization Code <b>FAA (APO-220)</b>	
		8. Performing Organization Report No.	
7. Author(s) <b>Daniel E. Taylor, Frank J. Berardino, Jerome Bentley, and Earl Bomberger</b>		10. Work Unit No. (TRAIS)	
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The procedure for 1992 was a mirror image of the 1984 method except that labor hours were identified for the 1992 system from the forecast 1990 FMF.

Leased Communications Costs--Leased telecommunications costs are the expenses incurred by operating sites for leased communications equipment and services. These permit ATC personnel to communicate with both airmen and other facilities of the National Airspace System, Information on these costs was available from the FAAC's database only for 1984; estimates of future costs were unavailable, although the share-of direct costs accounted for by this cost category is expected to decline,

### 1.5 Indirect ATC Costs

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Table 2.4  
1992 ARTCC  
Econometric Results

<u>User Group</u>	<u>(\$-1986) Estimated MC</u>	<u>t-Statistics</u>
Air Carrier	\$ 10.86	10.47
Commuter	\$ 10.86	10.47
GA	\$ 10.86	10.47
Military	\$ 17.29	4.12

Joint Cost per Site = \$ 5,865,511

R-Square = 0.872

Activity Measure: Handles

Cost Measure: AFS and ATC Labor

Table 2.4  
1992 ARTCC  
Econometric Results

<u>User Group</u>	<u>(\$-1986) Estimated MC</u>	<u>t-Statistics</u>
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R-Square = 0.872

Activity Measure: Handles

Cost Measure: AFS and ATC Labor

Finally, none of the alternative tests for multicollinearity indicated any problem for either of the ARTCC cost functions.

## 2.5 FSSs

Table 2.6 reports the mean values of the variables used in the FSS cost equations.

Table 2.6

MEAN VALUES OF FSS VARIABLES

306 Observations in 1984; 59 Observations in 1992

<u>Mean Values</u>	<u>1984</u>	<u>1992</u>
Total Cost	\$769,899 (1984 - \$)	\$3,197,325 (1986 - \$)
Pilot Briefs	50,043	315,762
IFR Flight Plans	21,167	139,360
VFR Flight Plans	6,312	37,403
Air Contacts	27,919	144,757

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What is immediately obvious from the table is the vast differences between the average facilities in 1984 and 1992. Both cost and output measures are substantially larger for the 1992 advanced FSS system, than for the current system. This is wholly due to the expected reduction in the number of FSS stations from 306 in 1984 sample to 59 in 1992 sample. It should also be noted that the results for different user groups are not reported in Table 2.6. This is due to the finding that there were no differences found in the cost of producing FSS services for different user groups.

The results of the regression experiments for FSSs in 1984 and 1992 are reported in Tables 2.7 and 2.8 respectively. In general, both estimated cost functions appear to be statistically sound, with individual coefficients having expected signs and high significance. Both models explain approximately 90 percent of the variation in FSS costs,

Shown in Table 2.9 are the results of the tests of properties of the FSS cost functions. Tests for non-linearity proved to be negative, with both the log linear and quadratic forms having less desirable properties than the linear form,

Table 2.9

TESTS OF PROPERTIES OF FSS COST FUNCTIONS

<u>Test</u>	<u>Result</u>
Non-Linearity	Negative--Collinearity; visual inspection showed linear relationship
User Group Costs	No difference--separate user group specifications showed similar marginal costs
Cost of Services	Positive in current system, no difference in future
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1992 TRACON  
Econometric Results

<u>User Group</u>	<u>(\$-1986)</u> <u>Estimated MC</u>	<u>t-Statistics</u>
Air Carriers	\$ 12.55	23.83
Commuters	\$ 12.55	23.83
G A	\$ 4.72	5.14
Military	\$ 12.55	23.83

Joint Cost per Site = \$ 1,308,847

R-Square = 0.804

Activity Measure: Operations + Seconds + Overs

Cost Measure: AFS and ATC Labor

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## DATA FOR 1984 AND 1992 CALCULATIONS

This appendix describes the derivation of activity data used in the cost functions previously described. The database employed in the regression studies is also included in the appendix. A glossary of variable names preceeds the database,

### TRACON and Tower Databases

The 1984 databases for TRACONS and Towers were modified to reflect actual activity exhibited by air carriers and commuters, FAA activity counts do not separately identify commuter operations.

### OAG Data

The tapes for the North American Edition of the Official Airline Guide were run for the period October 1984 through September 1985. For each airport in North America, the total number of the following scheduled flights were counted:

- o domestic flights by U.S. carriers,
- o domestic flights by international carriers,
- o domestic flights by U.S. commuter airlines (defined aircraft with fewer than 60 seats),
- o domestic flights by international commuter airlines,
- o international flights by U.S. carriers,
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- o international flights by international carriers,
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- o international flights by international commuters.

The adjustments made depended on the relative sizes of the counts. The four possibilities and the adjustments made are shown in Figure 1. Each cell in the matrix is numbered:

- o Cell 1: Both FAA air carrier and air taxi counts exceed the OAG counts. This indicates that some commuter operations are counted in the FAA air carrier operations counts and in the FAA air taxi counts. Therefore, the OAG figures are probably more accurate and are used for air carrier and commuter operations. The air taxi counts then become a residual as illustrated in the figure.
- o Cell 2: FAA air carrier counts exceed OAG air carrier counts but OAG commuter counts exceed FAA air taxi counts, FAA air carrier counts include commuter operations and therefore the OAG air carrier counts are likely to be more accurate than those made by the FAA. Two further adjustments are possible. First, if the remaining FAA operations exceed the OAG commuter counts, then air taxi and commuter operations exist at the airport: therefore, commuter operations are assumed to be equal to the OAG counts. The residual then becomes the air taxi count. Otherwise, there are unlikely to be a significant number of air taxi operations at the airport, and commuters are allocated all remaining FAA air carrier and FAA air taxi operations.

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The final adjustment made to the data was to allocate all remaining air taxi operations at each site to general aviation. At each site, four types of operations data were available:

- o Air Carrier Operations,
- o Commuter Operations,
- o General Aviation Operations (including air taxis),
- o Military Operations.

These operations data were then used in conjunction with site-specific cost data to estimate the marginal costs of FAA production,

#### ARTCC and FSS Databases

Activity counts for these facilities were modified to separately identify commuter operators based on the results for TRACONS and towers. Commuters were assumed to account for a proportionate share of air carrier activity at these facilities with one exception--they were assumed to account for zero overs at ARTCC's because of their relatively short stage lengths, These overs were assumed to remain the responsibility of other air carriers: --

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**Table A2 Continued**

LOCID	COSTTOT1	TQAC	VFRFLT1	QIFRFB
MGW	506961	5814	1006	26345
MHK	294067	40792	1260	18940
MIA	4349254	232101	93083	366257
MIV	1340271	38863	6061	221434
MKC	2082136	45481	8866	193006
MKE	1468449	20217	7375	159706
MKL	393755	25716	1051	26296
MLB	794577	33999	23550	77892
MLC	444929	25715	1375	11586
MLS	395086	25661	6005	24807
MLU	368836	8206	1513	34848
MOB	760394	17058	4488	88846
MOT	519348	19032	6685	35328
MPV	679817	25675	3417	45699
MQT	334027	24868	1101	27342
MRB	572159	29353	6003	131955
MSL	752773	40471	4882	59216
MSO	335402	9650	3017	12968
MSP	2081671	44448	12149	228044
MSS	397096	13338	1340	30793
MWL	80243	81 is	219	2240
MYV	280848	34459	2518	13290
NEW	1707434	31384	7107	197406
OAK	2920345	104846	33615	262631
OKC	2339580	50462	12949	232824
OMA	1341754	38158	5318	125541
OME	723750	57055	11423	34567
ONT	2146911	37387	26540	220141
ORL	1375817	40068	17691	227249
ORT	355064	9615	3534	4636
OTH	670035	33543	4025	29888
OTM	293534	26548	2215	37794
OTZ	626935	47132	17100	19076
PAH	389503	37807	1258	44743
PAQ	127053	20658	1985	9778
PBF	77217	11877	433	5542
PDX	2229111	52585	14737	181506
PHF	1259094	16659	6126	146523
PHX	2288925	119088	48568	178748
PIE	1410549	33956	12391	227472
PIR	395148	29697	2726	19875
PKB	523068	10643	2224	61751
PLN	380466	20732	2416	26560
PNC	212978	21221	613	8624
PNE	1569490	15929	8191	218034
PNS	489361	6176	5841	48126
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MLS	395086	25661	6005	24807
MLU	368836	8206	1513	34848
MOB	760394	17058	4488	88846
MOT	519348	19032	6685	35328
MPV	679817	25675	3417	45699
MQT	334027	24868	1101	27342
MRB	572159	29353	6003	131955
MSL	752773	40471	4882	59216
MSO	335402	9650	3017	12968
MSP	2081671	44448	12149	228044
MSS	397096	13338	1340	30793
MWL	80243	81 is	219	2240
MYV	280848	34459	2518	13290
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NEW	1707434	31384	7107	197406
OAK	2920345	104846	33615	262631
OKC	2339580	50462	12949	232824
OMA	1341754	38158	5318	125541
OME	723750	57055	11423	34567
ONT	2146911	37387	26540	220141
ORL	1375817	40068	17691	227249
ORT	355064	9615	3534	4636
OTH	670035	33543	4025	29888
OTM	293534	26548	2215	37794
OTZ	626935	47132	17100	19076
PAH	389503	37807	1258	44743
PAQ	127053	20658	1985	9778
PBF	77217	11877	433	5542
PDX	2229111	52585	14737	181506
PHF	1259094	16659	6126	146523
PHX	2288925	119088	48568	178748
PIE	1410549	33956	12391	227472
PIR	395148	29697	2726	19875
PKB	523068	10643	2224	61751
PLN	380466	20732	2416	26560
PNC	212978	21221	613	8624
PNE	1569490	15929	8191	218034
PNS	489361	6176	5841	48126
POU	1063153	27481	7010	182038
PRB	464582	55230	5952	31935

**Table A2 Continued**

LOCID	COSTTOT1	TQAC	VFRFLT1	QIFRFB
MGW	506961	5814	1006	26345
MHK	294067	40792	1260	18940
MIA	4349254	232101	93083	366257
MIV	1340271	38863	6061	221434
MKC	2082136	45481	8866	193006
MKE	1468449	20217	7375	159706
MKL	393755	25716	1051	26296
MLB	794577	33999	23550	77892
MLC	444929	25715	1375	11586
MLS	395086	25661	6005	24807
MLU	368836	8206	1513	34848
MOB	760394	17058	4488	88846
MOT	519348	19032	6685	35328
MPV	679817	25675	3417	45699
MQT	334027	24868	1101	27342
MRB	572159	29353	6003	131955
MSL	752773	40471	4882	59216
MSO	335402	9650	3017	12968
MSP	2081671	44448	12149	228044
MSS	397096	13338	1340	30793
MWL	80243	8115	219	2240
MYV	280848	34459	2518	13290
NEW	1707434	31384	7107	197406
OAK	2920345	104846	33615	262631
OKC	2339580	50462	12949	232824
OMA	1341754	38158	5318	125541
OME	723750	57055	11423	34567
ONT	2146911	37387	26540	220141
ORL	1375817	40068	17691	227249
ORT	355064	9615	3534	4636
OTH	670035	33543	4025	29888
OTM	293534	26548	2215	37794
OTZ	626935	47132	17100	19076
PAH	389503	37807	1258	44743
PAQ	127053	20658	1985	9778
PBF	77217	11877	433	5542
PDX	2229111	52585	14737	181506
PHF	1259094	16659	6126	146523
PHX	2288925	119088	48568	178748
PIE	1410549	33956	12391	227472
PIR	395148	29697	2726	19875
PKB	523068	10643	2224	61751
PLN	380466	20732	2416	26560
PNC	212978	21221	613	8624
PNE	1569490	15929	8191	218034
PNS	489361	6176	5841	48126
POU	1063153	27481	7010	182038
PRB	464582	55230	5952	31935

**Table A2 Continued**

LOCID	COSTTOT1	TQAC	VFRFLT1	QIFRFB
MGW	506961	5814	1006	26345
MHK	294067	40792	1260	18940
MIA	4349254	232101	93083	366257
MIV	1340271	38863	6061	221434
MKC	2082136	45481	8866	193006
MKE	1468449	20217	7375	159706
MKL	393755	25716	1051	26296
MLB	794577	33999	23550	77892
MLC	444929	25715	1375	11586
MLS	395086	25661	6005	24807
MLU	368836	8206	1513	34848
MOB	760394	17058	4488	88846
MOT	519348	19032	6685	35328
MPV	679817	25675	3417	45699
MQT	334027	24868	1101	27342
MRB	572159	29353	6003	131955
MSL	752773	40471	4882	59216
MSO	335402	9650	3017	12968
MSP	2081671	44448	12149	228044
MSS	397096	13338	1340	30793
MWL	80243	8115	219	2240
MYV	280848	34459	2518	13290
NEW	1707434	31384	7107	197406
OAK	2920345	104846	33615	262631
OKC	2339580	50462	12949	232824
OMA	1341754	38158	5318	125541
OME	723750	57055	11423	34567
ONT	2146911	37387	26540	220141
ORL	1375817	40068	17691	227249
ORT	355064	9615	3534	4636
OTH	670035	33543	4025	29888
OTM	293534	26548	2215	37794
OTZ	626935	47132	17100	19076
PAH	389503	37807	1258	44743
PAQ	127053	20658	1985	9778
PBF	77217	11877	433	5542
PDX	2229111	52585	14737	181506
PHF	1259094	16659	6126	146523
PHX	2288925	119088	48568	178748
PIE	1410549	33956	12391	227472
PIR	395148	29697	2726	19875
PKB	523068	10643	2224	61751
PLN	380466	20732	2416	26560
PNC	212978	21221	613	8624
PNE	1569490	15929	8191	218034
PNS	489361	6176	5841	48126
POU	1063153	27481	7010	182038
PRB	464582	55230	5952	31935

**Table A2 Continued**

LOCID	COSTTOT1	TQAC	VFRFLT1	QIFRPB
MGW	506961	5814	1006	26345
MHK	294067	40792	1260	18940
MIA	4349254	232101	93083	366257
MIV	1340271	38863	6061	221434
MKC	2082136	45481	8866	193006
MKE	1468449	20217	7375	159706
MKL	393755	25716	1051	26296
MLB	794577	33999	23550	77892
MLC	444929	25715	1375	11586
MLS	395086	25661	6005	24807
MLU	368836	8206	1513	34848
MOB	760394	17058	4488	88846
MOT	519348	19032	6685	35328
MPV	679817	25675	3417	45699
MQT	334027	24868	1101	27342
MRB	572159	29353	6003	131955
MSL	752773	40471	4882	59216
MSO	335402	9650	3017	12968
MSP	2081671	44448	12149	228044
MSS	397096	13338	1340	30793
MWL	80243	8115	219	2240
MYV	280848	34459	2518	13290
NEW	1707434	31384	7107	197406
OAK	2920345	104846	33615	262631
OKC	2339580	50462	12949	232824
OMA	1341754	38158	5318	125541
OME	723750	57055	11423	34567
ONT	2146911	37387	26540	220141
ORL	1375817	40068	17691	227249
ORT	355064	9615	3534	4636
OTH	670035	33543	4025	29888
OTM	293534	26548	2215	37794
OTZ	626935	47132	17100	19076
PAH	389503	37807	1258	44743
PAQ	127053	20658	1985	9778
PBF	77217	11877	433	5542
PDX	2229111	52585	14737	181506
PHF	1259094	16659	6126	146523
PHX	2288925	119088	48568	178748
PIE	1410549	33956	12391	227472
PIR	395148	29697	2726	19875
PKB	523068	10643	2224	61751
PLN	380466	20732	2416	26560
PNC	212978	21221	613	8624
PNE	1569490	15929	8191	218034
PNS	489361	6176	5841	48126
POU	1063153	27481	7010	182038
PRB	464582	55230	5952	31935

**Table A2 Continued**

LOCID	COSTTOT1	TQAC	VFRFLT1	QIFRPB
MGW	506961	5814	1006	26345
MHK	294067	40792	1260	18940
MIA	4349254	232101	93083	366257
MIV	1340271	38863	6061	221434
MKC	2082136	45481	8866	193006
MKE	1468449	20217	7375	159706
MKL	393755	25716	1051	26296
MLB	794577	33999	23550	77892
MLC	444929	25715	1375	11586
MLS	395086	25661	6005	24807
MLU	368836	8206	1513	34848
MOB	760394	17058	4488	88846
MOT	519348	19032	6685	35328
MPV	679817	25675	3417	45699
MQT	334027	24868	1101	27342
MRB	572159	29353	6003	131955
MSL	752773	40471	4882	59216
MSO	335402	9650	3017	12968
MSP	2081671	44448	12149	228044
MSS	397096	1333a	1340	30793
MWL	80243	81 is	219	2240
MYV	280848	34459	2518	13290
NEW	1707434	31384	7107	197406
OAK	2920345	104846	33615	262631
OKC	2339580	50462	12949	232824
OMA	1341754	38158	5318	125541
OME	723750	57055	11423	34567
ONT	2146911	37387	26540	220141
ORL	1375817	40068	17691	227249
ORT	355064	9615	3534	4636
OTH	670035	33543	4025	29888
OTM	293534	26548	2215	37794
OTZ	626935	47132	17100	19076
PAH	389503	37807	1258	44743
PAQ	127053	20658	1985	9778
PBF	77217	11877	433	5542
PDX	2229111	52585	14737	181506
PHF	1259094	16659	6126	146523
PHX	2288925	119088	48568	178748
PIE	1410549	33956	12391	227472
PIR	395148	29697	2726	19875
PKB	523068	10643	2224	61751
PLN	380466	20732	2416	26560
PNC	212978	21221	613	8624
PNE	1569490	15929	8191	218034
PNS	489361	6176	5841	48126
POU	1063153	27481	7010	182038
PRB	464582	55230	5952	31935

Table A3 Continued

LOCID	COSTTOT1	ACNEW	COM	GANEW	MILTOT	LEVEL1
TCL	359501	939	1905	31472	2456	1
TEB	1007321	0	3522	271932	497	0
TIW	467575	2	0	79680	927	0
TMB	942429	0	0	312008	380	0
TOA	822468	0	0	262296	350	0
TTD	345256	1	0	67221	529	1
TTN	680536	1066	6976	133954	9132	0
TUT	3918	0	8214	672	.	
TVC	386045	4663	7898	61013	9907	1
TVL	246641	2137	2334	36116	751	1
TWF	371714	65	7092	39840	553	1
TXK	451756	0	6145	36015	2455	1
TYR	602770	0	17791	66249	326	1
VGT	474346	0	5331	118732	293	0
VNY	1107026	2	0	579153	3792	0
VRB	660768	0	3411	129833	159	0
WJF	276238	0	3502	93954	4464	1
Y IP	858339	5750	1925	144314	249	0
YKM	579698	0	17326	61798	7057	0



Table A3 Continued

LOCID	COSTTOT1	ACNEW	COM	GANEW	MILTOT	LEVEL1
TCL	359501	939	1905	31472	2456	1
TEB	1007321	0	3522	271932	497	0
TIW	467575	2	0	79680	927	0
TMB	942429	0	0	312008	380	0
TOA	822468	0	0	262296	350	0
TTD	345256	1	0	67221	529	1
TTN	680536	1066	6976	133954	9132	0
TUT	3918	0	8214	672	.	
TVC	386045	4663	7898	61013	9907	1
TVL	246641	2137	2334	36116	751	1
TWF	371714	65	7092	39840	553	1
TXK	451756	0	6145	36015	2455	1
TYR	602770	0	17791	66249	326	1
VGT	474346	0	5331	118732	293	0
VNY	1107026	2	0	579153	3792	0
VRB	660768	0	3411	129833	159	0
WJF	276238	0	3502	93954	4464	1
Y IP	858339	5750	1925	144314	249	0
YKM	579698	0	17326	61798	7057	0

Table A3 Continued

LOCID	,COSTTOT1	ACNEW	COM	GANEW	MILTOT	LEVEL 1
TCL	359501	939	1905	31472	2456	1
TEB	1007321	0	3522	271932	497	0
TIW	467575	2	0	79680	927	0
TMB	942429	0	0	312008	380	0
TOA	822468	0	0	262296	350	0
TTD	345256	1	0	67221	529	1
TTN	680536	1066	6976	133954	9132	0
TUT	3918	0	8214	672	.	
TVC	386045	4663	7898	61013	9907	1
TVL	246641	2137	2334	36116	751	1
TWF	371714	65	7092	39840	553	1
TXK	451756	0	6145	36015	2455	1
TYR	602770	0	17791	66249	326	1
VGT	474346	0	5331	118732	293	0
VNY	1107026	2	0	579153	3792	0
VRB	660768	0	3411	129833	159	0
WJF	276238	0	3502	93954	4464	1
YIP	858339	5750	1925	144314	249	0
YKM	579698	0	17326	61798	7057	0

Table A3 Continued

LOCID	,COSTTOT1	ACNEW	COM	GANEW	MILTOT	LEVEL 1
TCL	359501	939	1905	31472	2456	1
TEB	1007321	0	3522	271932	497	0
TIW	467575	2	0	79680	927	0
TMB	942429	0	0	312008	380	0
TOA	822468	0	0	262296	350	0
TTD	345256	1	0	67221	529	1
TTN	680536	1066	6976	133954	9132	0
TUT	3918	0	8214	672	.	
TVC	386045	4663	7898	61013	9907	1
TVL	246641	2137	2334	36116	751	1
TWF	371714	65	7092	39840	553	1
TXK	451756	0	6145	36015	2455	1
TYR	602770	0	17791	66249	326	1
VGT	474346	0	5331	118732	293	0
VNY	1107026	2	0	579153	3792	0
VRB	660768	0	3411	129833	159	0
WJF	276238	0	3502	93954	4464	1
YIP	858339	5750	1925	144314	249	0
YKM	579698	0	17326	61798	7057	0

Table A3 Continued

LOCID	COSTTOT1	ACNEW	COM	GANEW	MILTOT	LEVEL 1
TCL	359501	939	1905	31472	2456	1
TEB	1007321	0	3522	271932	497	0
TIW	467575	2	0	79680	927	0
TMB	942429	0	0	312008	380	0
TOA	822468	0	0	262296	350	0
TTD	345256	1	0	67221	529	1
TTN	680536	1066	6976	133954	9132	0
TUT	3918	0	8214	672	.	
TVC	386045	4663	7898	61013	9907	1
TVL	246641	2137	2334	36116	751	1
TWF	371714	65	7092	39840	553	1
TXK	451756	0	6145	36015	2455	1
TYR	602770	0	17791	66249	326	1
VGJ	474346	0	5331	118732	293	0
VNY	1107026	2	0	579153	3792	0
VRB	660768	0	3411	129833	159	0
WJF	276238	0	3502	93954	4464	1
YIP	858339	5750	1925	144314	249	0
YKM	579698	0	17326	61798	7057	0

Table A3 Continued

LOCID	COSTTOT1	ACNEW	COM	GANEW	MILTOT	LEVEL 1
TCL	359501	939	1905	31472	2456	1
TEB	1007321	0	3522	271932	497	0
TIW	467575	2	0	79680	927	0
TMB	942429	0	0	312008	380	0
TOA	822468	0	0	262296	350	0
TTD	345256	1	0	67221	529	1
TTN	680536	1066	6976	133954	9132	0
TUT	3918	0	8214	672	.	
TVC	386045	4663	7898	61013	9907	1
TVL	246641	2137	2334	36116	751	1
TWF	371714	65	7092	39840	553	1
TXK	451756	0	6145	36015	2455	1
TYR	602770	0	17791	66249	326	1
VGJ	474346	0	5331	118732	293	0
VNY	1107026	2	0	579153	3792	0
VRB	660768	0	3411	129833	159	0
WJF	276238	0	3502	93954	4464	1
YIP	858339	5750	1925	144314	249	0
YKM	579698	0	17326	61798	7057	0

Table A3 Continued

LOCID	COSTTOT1	ACNEW	COM	GANEW	MILTOT	LEVEL 1
TCL	359501	939	1905	31472	2456	1
TEB	1007321	0	3522	271932	497	0
TIW	467575	2	0	79680	927	0
TMB	942429	0	0	312008	380	0
TOA	822468	0	0	262296	350	0
TTD	345256	1	0	67221	529	1
TTN	680536	1066	6976	133954	9132	0
TUT	3918	0	8214	672	.	
TVC	386045	4663	7898	61013	9907	1
TVL	246641	2137	2334	36116	751	1
TWF	371714	65	7092	39840	553	1
TXK	451756	0	6145	36015	2455	1
TYR	602770	0	17791	66249	326	1
VGJ	474346	0	5331	118732	293	0
VNY	1107026	2	0	579153	3792	0
VRB	660768	0	3411	129833	159	0
WJF	276238	0	3502	93954	4464	1
YIP	858339	5750	1925	144314	249	0
YKM	579698	0	17326	61798	7057	0

Table A7

COST AND AIR TRAFFIC ACTIVITY						
ESTIMATES BY TOWER FOR 1992						
LOCID	COST-TOT	ACNEW	COM	GANEW	MILTOT	LEVEL 1
ABY	742674	3110	4350	71025	9428	0
ADQ	352667	3171	10813	28494	13304	1
ADS	860773	0	1215	292218	135	0
AGC	844988	0	320	152199	1022	0
AKN	428024	2324	18079	30193	3979	1
ALN	375275	34	0	65011	3392	1
ALW	340126	0	6318	54095	315	1
APA	1251204	0	0	433023	871	0
W C	602578	0	0	180814	373	0
ARB	430384	0	0	155313	1464	1
ARR	657960	4	0	256256	202	0
ASE	371932	0	12213	47310	98	1
ATW	353864	5951	7945	57238	54	1
BAF	722055	a	0	131544	12685	0
BDR	745650	0	28991	187856	2558	0
BED	929263	0	17197	278779	2384	0
BET	527596	4274	60703	49858	1492	1
BFI	1326928	600	2203	397184	2883	0
BJC	729756	2	0	234512	1368	0
BKL	503178	0	9361	82523	827	1
BMG	382342	0	5500	45012	305	1
BMI	347508	0	12735	73144	614	1
BRO	1065330	3630	244	77464	4864	0
RTL	396396	0	5729	37303	7983	1
BVY	601208	0	0	188322	484	0
CCR	851616	0	9629	282151	1224	0
CDW	754152	5	0	263926	661	0
CGX	377063	0	86928	90619	1001	1
CHO	378598	4694	24358	59369	1649	1
CIC	361680	0	12491	74411	505	1
CI-L	513527	0	10621	103995	6076	1
CNO	758201	0	0	270213	517	0
COU	363129	4745	12978	64392	2459	1
CPS	736868	2679	5579	139442	2679	0
CRG	427895	49	0	152646	10980	1
CRQ	814564	0	9233	245026	2336	0
CSM	588503	3	0	32817	21118	0
CYS	856924	158	12510	56374	11197	0
DBQ	407970	0	15245	59315	454	1
DEC	648423	0	15474	83851	9625	0
DET	971865	0	10317	182609	328	0
DHN	467522	4394	5016	51401	65951	1
DPA	802935	0	0	312259	346	0
DTN	493183	0	0	94710	315	1
DVT	792413	3	0	382296	2362	0
DWH	723184	19	0	212776	1393	0
DXR	662376	0	0	180014	397	0
EMT	700666	0	0	231303	79	0
ENA	429530	0	53747	72268	3098	1
ESF	458427	1577	12949	46138	2192	1
EWE	448612	0	19463	116248	3131	1
EYW	421771	0	36471	41744	1597	1

Table A7

COST AND AIR TRAFFIC ACTIVITY  
ESTIMATES BY TOWER FOR 1992

LOCID	COST-TOT	ACNEW	COM	GANEW	MILTOT	LEVEL 1
ABY	742674	3110	4350	71025	9428	0
ADQ	352667	3171	10813	28494	13304	1
ADS	860773	0	1215	292218	135	0
AGC	844988	0	320	152199	1022	0
AKN	428024	2324	18079	30193	3979	1
ALN	375275	34	0	65011	3392	1
ALW	340126	0	6318	54095	315	1
APA	1251204	0	0	433023	871	0
W C	602578	0	0	180814	373	0
ARB	430384	0	0	155313	1464	1
ARR	657960	4	0	256256	202	0
ASE	371932	0	12213	47310	98	1
ATW	353864	5951	7945	57238	54	1
BAF	722055	a	0	131544	12685	0
BDR	745650	0	28991	187856	2558	0
BED	929263	0	17197	278779	2384	0
BET	527596	4274	60703	49858	1492	1
BFI	1326928	600	2203	397184	2883	0
BJC	729756	2	0	234512	1368	0
BKL	503178	0	9361	a2523	827	1
BMG	382342	0	5500	45012	305	1
BMI	347508	0	12735	73144	614	1
BRO	1065330	3630	244	77464	4864	0
RTL	396396	0	5729	37303	7983	1
BVY	601208	0	0	188322	484	0
CCR	851616	0	9629	282151	1224	0
CDW	754152	5	0	263926	661	0
CGX	377063	0	86928	90619	1001	1
CHO	378598	4694	24358	59369	1649	1
CIC	361680	0	12491	74411	505	1
CI-L	513527	0	10621	103995	6076	1
CNO	758201	0	0	270213	517	0
COU	363129	4745	12978	64392	2459	1
CPS	736868	2679	5579	139442	2679	0
CRG	427895	49	0	152646	10980	1
CRQ	814564	0	9233	245026	2336	0
CSM	588503	3	0	32817	21118	0
CYS	856924	158	12510	56374	11197	0
DBQ	407970	0	15245	59315	454	1
DEC	648423	0	15474	83851	9625	0
DET	971865	0	10317	182609	328	0
DHN	467522	4394	5016	51401	65951	1
DPA	802935	0	0	312259	346	0
DTN	493183	0	0	94710	315	1
DVT	792413	3	0	382296	2362	0
DWH	723184	19	0	212776	1393	0
DXR	662376	0	0	180014	397	0
EMT	700666	0	0	231303	79	0
ENA	429530	0	53747	72268	3098	1
ESF	458427	1577	12949	46138	2192	1
EWE	448612	0	19463	116248	3131	1
EYW	421771	0	36471	41744	1597	1



Table A7

COST AND AIR TRAFFIC ACTIVITY  
ESTIMATES BY TOWER FOR 1992

LOCID	COST-TOT	ACNEW	COM	GANEW	MILTOT	LEVEL 1
ABY	742674	3110	4350	71025	9428	0
ADQ	352667	3171	10813	28494	13304	1
ADS	860773	0	1215	292218	135	0
AGC	844988	0	320	152199	1022	0
AKN	428024	2324	18079	30193	3979	1
ALN	375275	34	0	65011	3392	1
ALW	340126	0	6318	54095	315	1
APA	1251204	0	0	433023	871	0
W C	602578	0	0	180814	373	0
ARB	430384	0	0	155313	1464	1
ARR	657960	4	0	256256	202	0
ASE	371932	0	12213	47310	98	1
ATW	353864	5951	7945	57238	54	1
BAF	722055	a	0	131544	12685	0
BDR	745650	0	28991	187856	2558	0
BED	929263	0	17197	278779	2384	0
BET	527596	4274	60703	49858	1492	1
BFI	1326928	600	2203	397184	2883	0
BJC	729756	2	0	234512	1368	0
BKL	503178	0	9361	a2523	827	1
BMG	382342	0	5500	45012	305	1
BMI	347508	0	12735	73144	614	1
BRO	1065330	3630	244	77464	4864	0
RTL	396396	0	5729	37303	7983	1
BVY	601208	0	0	188322	484	0
CCR	851616	0	9629	282151	1224	0
CDW	754152	5	0	263926	661	0
CGX	377063	0	86928	90619	1001	1
CHO	378598	4694	24358	59369	1649	1
CIC	361680	0	12491	74411	505	1
CLL	513527	0	10621	103995	6076	1
CNO	758201	0	0	270213	517	0
COU	363129	4745	12978	64392	2459	1
CPS	736868	2679	5579	139442	2679	0
CRG	427895	49	0	152646	10980	1
CRQ	814564	0	9233	245026	2336	0
CSM	588503	3	0	32817	21118	0
CYS	856924	158	12510	56374	11197	0
DBQ	407970	0	15245	59315	454	1
DEC	648423	0	15474	83851	9625	0
DET	971865	0	10317	182609	328	0
DHN	467522	4394	5016	51401	65951	1
DPA	802935	0	0	312259	346	0
DTN	493183	0	0	94710	315	1
DVT	792413	3	0	382296	2362	0
DWH	723184	19	0	212776	1393	0
DXR	662376	0	0	180014	397	0
EMT	700666	0	0	231303	79	0
ENA	429530	0	53747	72268	3098	1
ESF	458427	1577	12949	46138	2192	1
EWE	448612	0	19463	116248	3131	1
EYW	421771	0	36471	41744	1597	1

Table A7

COST AND AIR TRAFFIC ACTIVITY  
ESTIMATES BY TOWER FOR 1992

LOCID	COST-TOT	ACNEW	COM	GANEW	MILTOT	LEVEL 1
ABY	742674	3110	4350	71025	9428	0
ADQ	352667	3171	10813	28494	13304	1
ADS	860773	0	1215	292218	135	0
AGC	844988	0	320	152199	1022	0
AKN	428024	2324	18079	30193	3979	1
ALN	375275	34	0	65011	3392	1
ALW	340126	0	6318	54095	315	1
APA	1251204	0	0	433023	871	0
W C	602578	0	0	180814	373	0
ARB	430384	0	0	155313	1464	1
ARR	657960	4	0	256256	202	0
ASE	371932	0	12213	47310	98	1
ATW	353864	5951	7945	57238	54	1
BAF	722055	a	0	131544	12685	0
BDR	745650	0	28991	187856	2558	0
BED	929263	0	17197	278779	2384	0
BET	527596	4274	60703	49858	1492	1
BFI	1326928	600	2203	397184	2883	0
BJC	729756	2	0	234512	1368	0
BKL	503178	0	9361	a2523	827	1
BMG	382342	0	5500	45012	305	1
BMI	347508	0	12735	73144	614	1
BRO	1065330	3630	244	77464	4864	0
RTL	396396	0	5729	37303	7983	1
BVY	601208	0	0	188322	484	0
CCR	851616	0	9629	282151	1224	0
CDW	754152	5	0	263926	661	0
CGX	377063	0	86928	90619	1001	1
CHO	378598	4694	24358	59369	1649	1
CIC	361680	0	12491	74411	505	1
CLL	513527	0	10621	103995	6076	1
CNO	758201	0	0	270213	517	0
COU	363129	4745	12978	64392	2459	1
CPS	736868	2679	5579	139442	2679	0
CRG	427895	49	0	152646	10980	1
CRQ	814564	0	9233	245026	2336	0
CSM	588503	3	0	32817	21118	0
CYS	856924	158	12510	56374	11197	0
DBQ	407970	0	15245	59315	454	1
DEC	648423	0	15474	83851	9625	0
DET	971865	0	10317	182609	328	0
DHN	467522	4394	5016	51401	65951	1
DPA	802935	0	0	312259	346	0
DTN	493183	0	0	94710	315	1
DVT	792413	3	0	382296	2362	0
DWH	723184	19	0	212776	1393	0
DXR	662376	0	0	180014	397	0
EMT	700666	0	0	231303	79	0
ENA	429530	0	53747	72268	3098	1
ESF	458427	1577	12949	46138	2192	1
EWE	448612	0	19463	116248	3131	1
EYW	421771	0	36471	41744	1597	1

Table A7

COST AND AIR TRAFFIC ACTIVITY  
ESTIMATES BY TOWER FOR 1992

LOCID	COSTTOT	ACNEW	COM	GANEW	MILTOT	LEVEL1
ABY	742674	3110	4350	71025	9428	0
ADQ	352667	3171	10813	28494	13304	1
ADS	860773	0	1215	292218	135	0
AGC	844988	0	320	152199	1022	0
AKN	428024	2324	18079	30193	3979	1
ALN	375275	34	0	65011	3392	1
ALW	340126	0	6318	54095	315	1
APA	1251204	0	0	433023	871	0
W C	602578	0	0	180814	373	0
ARB	430384	0	0	155313	1464	1
ARR	657960	4	0	256256	202	0
ASE	371932	0	12213	47310	98	1
ATW	353864	5951	7945	57238	54	1
BAF	722055	a	0	131544	12685	0
BDR	745650	0	28991	187856	2558	0
BED	929263	0	17197	278779	2384	0
BET	527596	4274	60703	49858	1492	1
BFI	1326928	600	2203	397184	2883	0
BJC	729756	2	0	234512	1368	0
BKL	503178	0	9361	a2523	827	1
BMG	382342	0	5500	45012	305	1
BMI	347508	0	12735	73144	614	1
BRO	1065330	3630	244	77464	4864	0
RTL	396396	0	5729	37303	7983	1
BVY	601208	0	0	188322	484	0
CCR	851616	0	9629	282151	1224	0
CDW	754152	5	0	263926	661	0
CGX	377063	0	86928	90619	1001	1
CHO	378598	4694	24358	59369	1649	1
CIC	361680	0	12491	74411	505	1
CLL	513527	0	10621	103995	6076	1
CNO	758201	0	0	270213	517	0
COU	363129	4745	12978	64392	2459	1
CPS	736868	2679	5579	139442	2679	0
CRG	427895	49	0	152646	10980	1
CRQ	814564	0	9233	245026	2336	0
CSM	588503	3	0	32817	21118	0
CYS	856924	158	12510	56374	11197	0
DBQ	407970	0	15245	59315	454	1
DEC	648423	0	15474	83851	9625	0
DET	971865	0	10317	182609	328	0
DHN	467522	4394	5016	51401	65951	1
DPA	802935	0	0	312259	346	0
DTN	493183	0	0	94710	315	1
DVT	792413	3	0	382296	2362	0
DWH	723184	19	0	212776	1393	0
DXR	662376	0	0	180014	397	0
EMT	700666	0	0	231303	79	0
ENA	429530	0	53747	72268	3098	1
ESF	458427	1577	12949	46138	2192	1
EWE	448612	0	19463	116248	3131	1
EYW	421771	0	36471	41744	1597	1

Table A7

COST AND AIR TRAFFIC ACTIVITY  
ESTIMATES BY TOWER FOR 1992

LOCID	COSTTOT	ACNEW	COM	GANEW	MILTOT	LEVEL1
ABY	742674	3110	4350	71025	9428	0
ADQ	352667	3171	10813	28494	13304	1
ADS	860773	0	1215	292218	135	0
AGC	844988	0	320	152199	1022	0
AKN	428024	2324	18079	30193	3979	1
ALN	375275	34	0	65011	3392	1
ALW	340126	0	6318	54095	315	1
APA	1251204	0	0	433023	871	0
W C	602578	0	0	180814	373	0
ARB	430384	0	0	155313	1464	1
ARR	657960	4	0	256256	202	0
ASE	371932	0	12213	47310	98	1
ATW	353864	5951	7945	57238	54	1
BAF	722055	a	0	131544	12685	0
BDR	745650	0	28991	187856	2558	0
BED	929263	0	17197	278779	2384	0
BET	527596	4274	60703	49858	1492	1
BFI	1326928	600	2203	397184	2883	0
BJC	729756	2	0	234512	1368	0
BKL	503178	0	9361	a2523	827	1
BMG	382342	0	5500	45012	305	1
BMI	347508	0	12735	73144	614	1
BRO	1065330	3630	244	77464	4864	0
RTL	396396	0	5729	37303	7983	1
BVY	601208	0	0	188322	484	0
CCR	851616	0	9629	282151	1224	0
CDW	754152	5	0	263926	661	0
CGX	377063	0	86928	90619	1001	1
CHO	378598	4694	24358	59369	1649	1
CIC	361680	0	12491	74411	505	1
CLL	513527	0	10621	103995	6076	1
CNO	758201	0	0	270213	517	0
COU	363129	4745	12978	64392	2459	1
CPS	736868	2679	5579	139442	2679	0
CRG	427895	49	0	152646	10980	1
CRQ	814564	0	9233	245026	2336	0
CSM	588503	3	0	32817	21118	0
CYS	856924	158	12510	56374	11197	0
DBQ	407970	0	15245	59315	454	1
DEC	648423	0	15474	83851	9625	0
DET	971865	0	10317	182609	328	0
DHN	467522	4394	5016	51401	65951	1
DPA	802935	0	0	312259	346	0
DTN	493183	0	0	94710	315	1
DVT	792413	3	0	382296	2362	0
DWH	723184	19	0	212776	1393	0
DXR	662376	0	0	180014	397	0
EMT	700666	0	0	231303	79	0
ENA	429530	0	53747	72268	3098	1
ESF	458427	1577	12949	46138	2192	1
EWE	448612	0	19463	116248	3131	1
EYW	421771	0	36471	41744	1597	1

Table A8 Continued

LOCID	COSTTOT	NOTGATSO	GATSO
LAX	10507461	551095	167019
LBB	5685477	198725	144418
LCH	2030953	50294	141164
LEX	2653809	40619	132251
LFT	2765491	36089	246093
LGA	7542065	355423	245453
LIT	3469094	78436	241838
LNK	2033775	48925	181781
MAF	2764196	43463	154189
MBS	2469706	26377	100880
MCI	6102127	255220	163541
MCN	2327414	57331	129894
MCO	6109884	264932	228991
MDW	1545472	66525	197930
MEI	1972177	34960	46569
MEM	6943986	256867	194520
MFD	1488332	42178	120237
MGM	2462439	57558	120793
MIA	8468848	421400	321695
MKC	1076888	12958	178739
MKE	5413753	133048	189846
MKG	1551532	25597	118005
MLI	2672494	62652	122388
MLU	1758604	22569	131139
MOE	2774904	76186	94911
MRY	1829031	33213	131175
MSN	2532615	56601	180661
MSP	6675877	304747	226488
MSY	6337049	175329	194270
OAK	5393144	102011	462903
OGG	2064713	162479	117019
OKC	6348690	133881	241282
OLM	3638672	2453	96109
OMA	3533202	87095	157128
ONT	5797332	102979	87313
ORD	13046145	875882	265026
ORF	6326849	229419	157540
ORL	1149968	15298	191033
PBI	5841194	123504	260758
PDX	5218757	159017	166516
PHL	7405624	368460	272505
PHX	8397356	281535	206375
PIA	2836756	37725	123931
PIT	7408253	361768	199142
PMD	3983958	61784	43483
PNS	5867314	298264	152431
PSP	1921408	31441	127532
PUB	1498155	38131	87961
PVD	3193838	42024	202102
PWM	3198414	70727	153487
RDG	1447186	34321	151756

Table A8 Continued

LOCID	COSTTOT	NOTGATSO	GATSO
LAX	10507461	551095	167019
LBB	5685477	198725	144418
LCH	2030953	50294	141164
LEX	2653809	40619	132251
I-m-	2765491	36089	246093
I-WA	7542065	355423	245453
LIT	3469094	78436	241838
LNK	2033775	48925	181781
MAF	2764196	43463	154189
MBS	2469706	26377	100880
MCI	6102127	255220	163541
MCN	2327414	57331	129894
MCO	6109884	264932	228991
MDW	1545472	66525	197930
MEI	1972177	34960	46569
MEM	6943986	256867	194520
MFD	1488332	42178	120237
MGM	2462439	57558	120793
MIA	8468848	421400	321695
MKC	1076888	12958	178739
MKE	5413753	133048	189846
MKG	1551532	25597	118005
MLI	2672494	62652	122388
MLU	1758604	22569	131139
MOE	2774904	76186	94911
MRY	1829031	33213	131175
MSN	2532615	56601	180661
MSP	6675877	304747	226488
MSY	6337049	175329	194270
OAK	5393144	102011	462903
OGG	2064713	162479	117019
OKC	6348690	133881	241282
OLM	3638672	2453	96109
OMA	3533202	87095	157128
ONT	5797332	102979	87313
ORD	13046145	875882	265026
ORF	6326849	229419	157540
ORL	1149968	15298	191033
PBI	5841194	123504	260758
PDX	5218757	159017	166516
PHL	7405624	368460	272505
PHX	8397356	281535	206375
PIA	2836756	37725	123931
PIT	7408253	361768	199142
PMD	3983958	61784	43483
PNS	5867314	298264	152431
PSP	1921408	31441	127532
PUB	1498155	38131	87961
PVD	3193838	42024	202102
PWM	3198414	70727	153487
RDG	1447186	34321	151756

Table A8 Continued

LOCID	COSTTOT	NOTGATSO	GATSO
LAX	10507461	551095	167019
LBB	5685477	198725	144418
LCH	2030953	50294	141164
LEX	2653809	40619	132251
I-m-	2765491	36089	246093
I-WA	7542065	355423	245453
LIT	3469094	78436	241838
LNK	2033775	48925	181781
MAF	2764196	43463	154189
MBS	2469706	26377	100880
MCI	6102127	255220	163541
MCN	2327414	57331	129894
MCO	6109884	264932	228991
MDW	1545472	66525	197930
MEI	1972177	34960	46569
MEM	6943986	256867	194520
MFD	1488332	42178	120237
MGM	2462439	57558	120793
MIA	8468848	421400	321695
MKC	1076888	12958	178739
MKE	5413753	133048	189846
MKG	1551532	25597	118005
MLI	2672494	62652	122388
MLU	1758604	22569	131139
MOE	2774904	76186	94911
MRY	1829031	33213	131175
MSN	2532615	56601	180661
MSP	6675877	304747	226488
MSY	6337049	175329	194270
OAK	5393144	102011	462903
OGG	2064713	162479	117019
OKC	6348690	133881	241282
OLM	3638672	2453	96109
OMA	3533202	87095	157128
ONT	5797332	102979	87313
ORD	13046145	875882	265026
ORF	6326849	229419	157540
ORL	1149968	15298	191033
PBI	5841194	123504	260758
PDX	5218757	159017	166516
PHL	7405624	368460	272505
PHX	8397356	281535	206375
PIA	2836756	37725	123931
PIT	7408253	361768	199142
PMD	3983958	61784	43483
PNS	5867314	298264	152431
PSP	1921408	31441	127532
PUB	1498155	38131	87961
PVD	3193838	42024	202102
PWM	3198414	70727	153487
RDG	1447186	34321	151756

Table A8 Continued

LOCID	COSTTOT	NOTGATSO	GATSO
LAX	10507461	551095	167019
LBB	5685477	198725	144418
LCH	2030953	50294	141164
LEX	2653809	40619	132251
LFT	2765491	36089	246093
LGA	7542065	355423	245453
LIT	3469094	78436	241838
LNK	2033775	48925	181781
MAF	2764196	43463	154189
MBS	2469706	26377	100880
MCI	6102127	255220	163541
MCN	2327414	57331	129894
MCO	6109884	264932	228991
MDW	1545472	66525	197930
MEI	1972177	34960	46569
MEM	6943986	256867	194520
MFD	1488332	42178	120237
MGM	2462439	57558	120793
MIA	8468848	421400	321695
MKC	1076888	12958	178739
MKE	5413753	133048	189846
MKG	1551532	25597	118005
MLI	2672494	62652	122388
MLU	1758604	22569	131139
MOE	2774904	76186	94911
MRY	1829031	33213	131175
MSN	2532615	56601	180661
MSP	6675877	304747	226488
MSY	6337049	175329	194270
OAK	5393144	102011	462903
OGG	2064713	162479	117019
OKC	6348690	133881	241282
OLM	3638672	2453	96109
OMA	3533202	87095	157128
ONT	5797332	102979	87313
ORD	13046145	875882	265026
ORF	6326849	229419	157540
ORL	1149968	15298	191033
PBI	5841194	123504	260758
PDX	5218757	159017	166516
PHL	7405624	368460	272505
PHX	8397356	281535	206375
PIA	2836756	37725	123931
PIT	7408253	361768	199142
PMD	3983958	61784	43483
PNS	5867314	298264	152431
PSP	1921408	31441	127532
PUB	1498155	38131	87961
PVD	3193838	42024	202102
PWM	3198414	70727	153487
RDG	1447186	34321	151756